# SEMESTER END EXAMINATION APRIL-MAY, 2026

**Course Name: - B.Tech** **Semester: 6th**

**Paper Name: - Big Data** **Paper Code: TCS 086**

**Time - 3Hrs + 20 minutes per hour extra time for V.I. & examinees with writer.** **Max Marks-70**

**Instructions:**

The question paper consists of three sections namely A, B, C. All sections are compulsory.
Section A- Each question carries **03** marks. All questions are compulsory.
Section B- Answer any **5 out of 7** given questions. Each question carries **7 marks.**
Section C- Answer any **2 out of 3** given questions. Each question carries **10 marks.**

## Section – A
## Objective Questions

**1. Answer all the following questions.** **5×3=15**

i) The output of the Map phase is:

A) Sorted data

B) Key-value pairs

C) Final result

D) Indexed data

ii) MapReduce works on which type of processing?

A) Sequential

B) Parallel

C) Serial

D) Manual

iii) Which type of NoSQL database is MongoDB?

A) Key-Value

B) Column

C) Document

D) Graph

iv) Which component manages metadata in HDFS?

A) DataNode

B) NameNode

C) TaskTracker

D) JobTracker

v) Secondary NameNode is used for:

A) Backup storage

B) Data processing

C) Merging edit logs

D) Query execution

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## Section – B
## Short Answer Questions

**2. Answer any five of the following questions.** **5×7=35**

(i) Explain how distributed file systems achieve fault tolerance and scalability?

(ii) Differentiate between structured, semi-structured, and unstructured data with use cases?

(iii) Briefly explain all the Hive Components?

(iv) State that how HBase Uses ZooKeeper?

(v) Explain the working of NameNode and DataNode in HDFS.

(vi) Explain how the 4 V's collectively impact system design and analytics strategies in Big Data systems?

(vii) A social media platform handles unstructured data like images, videos, and text. Justify the use of NoSQL databases (MongoDB) over relational databases.

## Section – C
## Descriptive Questions

**3. Answer any 02 question of the following question.** **2×10=20**

(i) Describe the architecture of MapReduce and explain the roles of JobTracker and TaskTracker?

(ii) Outline the core components of the Apache Hadoop Ecosystem? Thoroughly explain each and every element of Hadoop Ecosystem?

(iii) Briefly describe the architecture of Apache Pig and include working of Apache Pig?

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